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(54) Transportable container mountable on a pallet

(57) A container 1 mountable on a pallet such as a standard "Euro" pallet comprises a base 5, a lid 7 and a sleeve 9. The base 5 and the lid 7 each comprise a single sheet of thermo-formed high molecular weight HDPE. The sleeve 9 may be made from heavy duty corrugated cardboard, plastics or plywood. The base 5 has downwardly protruding ribs for cooperation with slots 2 in the pallet.

The container 1 is collapsible. The sleeve 9 may be detached from the base 5 and the lid 7 and may be folded flat. The folded sleeve 9 may then be placed in the base 5, and the lid 7 may then be placed directly onto the base 5.

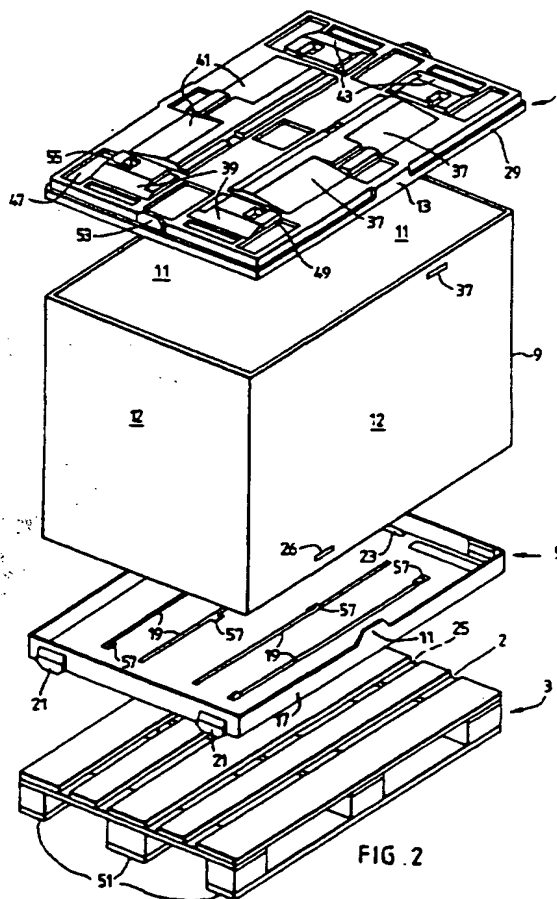
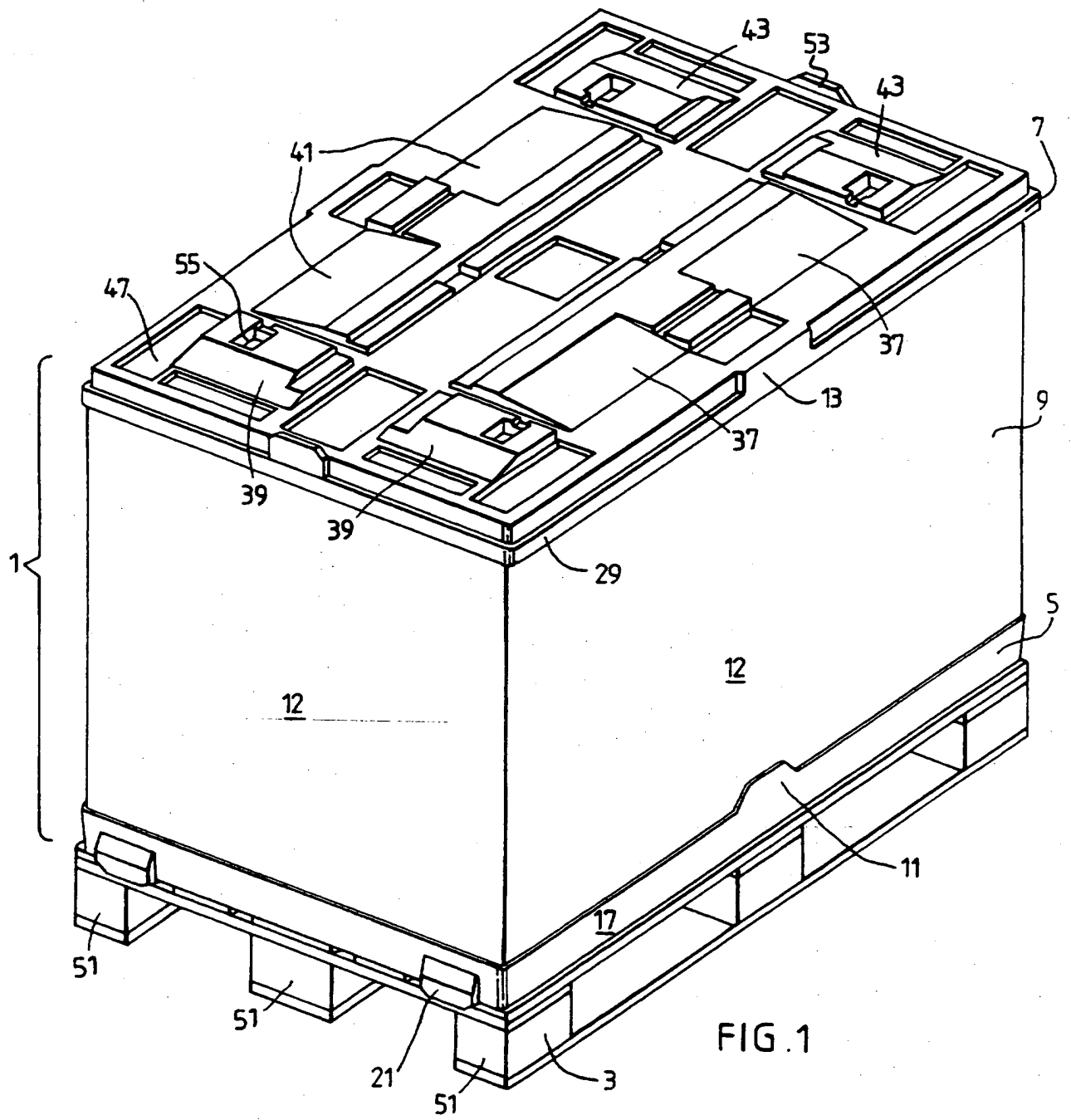


FIG. 2

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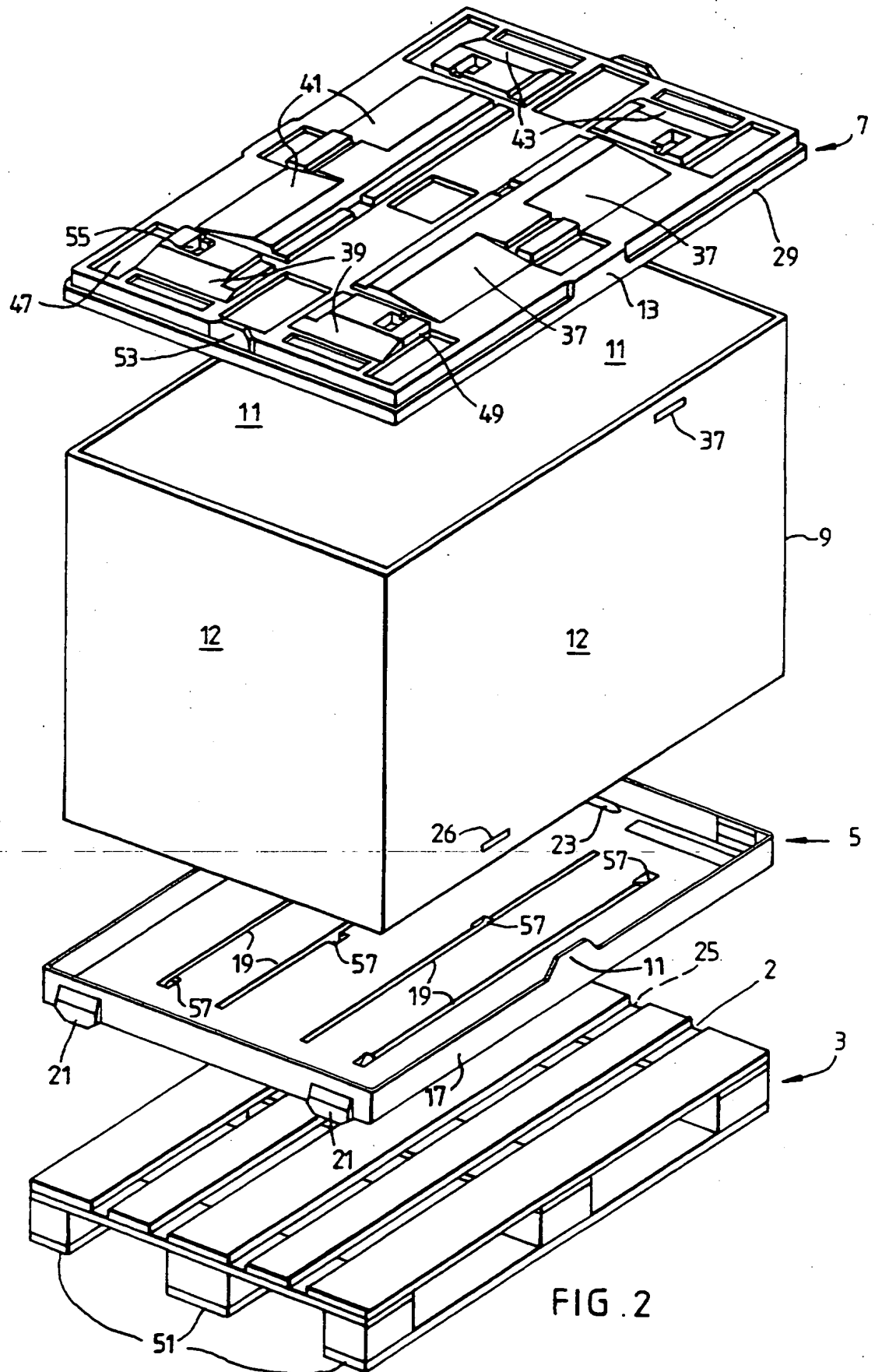
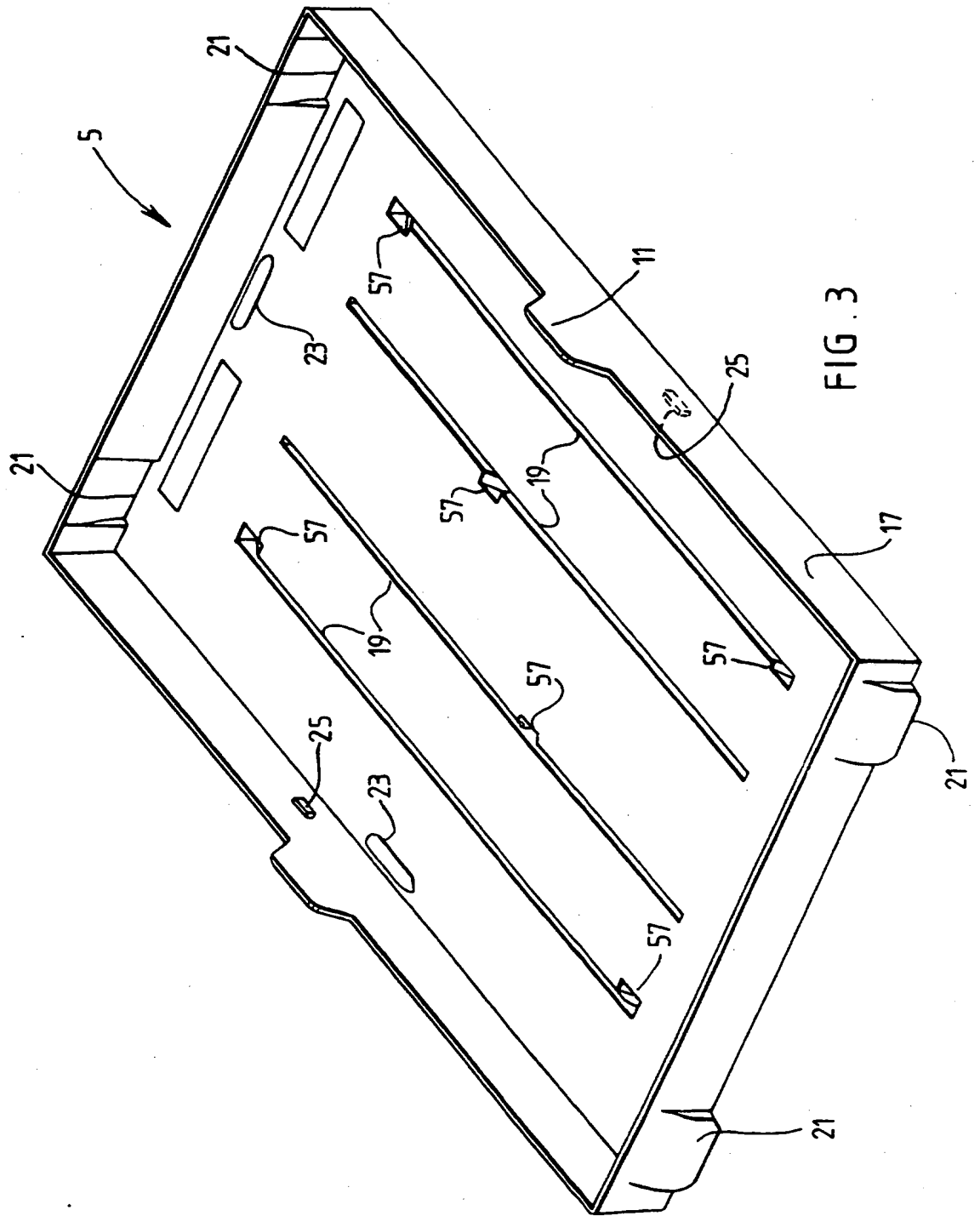


FIG. 2



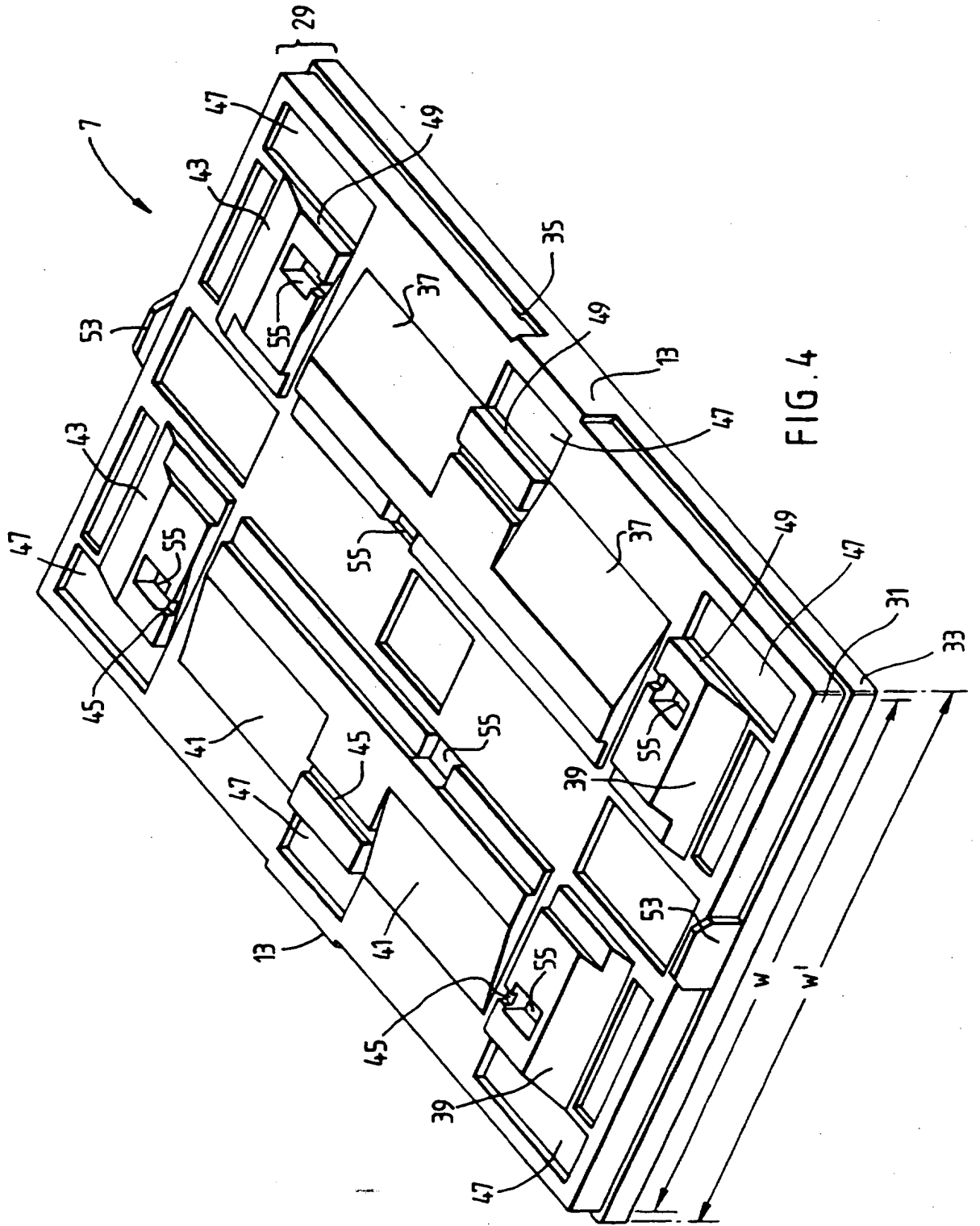


FIG. 4

TRANSPORTABLE CONTAINER MOUNTABLE ON A PALLET

This invention relates to a transportable container which is mountable on a pallet and more particularly to the configuration of the base and lid parts of the container.

A well known method of moving containers is to mount them on a pallet which is configured to receive the prongs of a fork lift truck. There are various standard sizes of pallet. One such standard pallet is the "EURO" pallet which is in widespread use as part of an exchange pool. However, such pallets are often not usable as a collapsible, relatively lightweight container system.

It is an object of the invention to seek to mitigate this disadvantage.

According to a first aspect of the invention there is provided a base for a container, the base having at least one rib for mechanical cooperation with a pallet or the like on which the base is mounted in use so as to tend to reduce relative movement between the base and the pallet or the like.

The ribs, by locating the base of the container more securely increase the safety with which containers can be transported and reduces the likelihood of damage to the container's contents.

The base may include at least one peripheral flange for tending to reduce relative movement between the base and the pallet. The flange or flanges may be such that they are pinched by a fork lift truck or clamp truck, when they are being moved, against the pallet face. This reduces the likelihood of the container deforming and/or the likelihood of the container jumping off the pallet.

Additionally or alternatively the base may include at least one peripheral flange for mechanical cooperation with a wall of the container when the container is in an assembled state and/or for mechanical cooperation with the lid of the container when the container is in a collapsed state. In the collapsed state the sleeve which forms the walls of the container may be folded flat and placed in the base. The lid may then be securely mounted to the base. Such a feature makes the container easy and efficient to transport when it is empty.

The base preferably comprises at least one part for mechanical cooperation with a container lid on which the base is mounted in use. This feature may enable several containers to be mounted directly on top of each other in a secure manner. Containers are most likely to be arranged in this manner when they are in collapsed form, during transportation.

The base may comprise a lip having a projection formed thereon for mechanical cooperation with a slot formed in the wall of a container. This feature enables the walls to be fixed to the base.

The present invention also relates to a lid for a container, the lid comprising at least one ramp portion for guiding a prong of a fork-lift or the like. Thus, when several containers are mounted one on top of the other, the top container and pallet may be more easily removed.

Advantageously, two ramp portions are provided, the ramps being arranged substantially perpendicular to one another on the lid. This feature may enable the containers to be easily moved by a fork-lift or the like from two directions, e.g. from the front and the side.

The lid may comprise at least one part for mechanical cooperation with a pallet

or the like which is mounted on the lid in use. This feature may enable pallets to be securely mounted on top of the lid.

At least one part for mechanical cooperation with a container base which is mounted on the lid in use may also be provided on the lid. This part would cooperate with a corresponding part on the base (as described above).

The lid may comprise means for locating a securing strap.

The present invention further relates to a container comprising a sleeve, a base having any one of or any combination of the features described above, and a lid having any one of or combination of the features described above. The sleeve may be collapsible to facilitate easy transportation of the container when it is empty.

When the container is collapsible the lid and the base advantageously include respective means which mechanically cooperate with one another to locate the lid on the base when the sleeve is in a collapsed state, at least one of these means also serving to locate a wall of the sleeve when the sleeve is in a non-collapsed state. Thus, one part may serve a different purpose depending on whether the sleeve is in a collapsed state or not, thereby reducing manufacturing costs.

A container embodying the invention is hereinafter described, by way of example, with reference to the accompanying drawings.

Fig. 1 shows an assembled container mounted on a pallet;

Fig. 2 shows an exploded view of the container and the pallet;

Fig. 3 shows, in greater detail, the base of the container; and

Fig. 4 shows, in greater detail, the lid of the container.

Referring firstly to Figs. 1 and 2 a container indicated generally at 1 is mounted on a pallet 3 to facilitate easy transportation of the container by means of a fork-lift truck, a clamp truck, or the like. The pallet is a standard type of pallet known as the "EURO" pallet. Such pallets, to enable efficient distribution of goods between the companies, are readily exchangeable between companies. The container 1 is designed specifically for use with the standard "EURO" pallet.

The container comprises a base 5, a lid 7 and a sleeve 9. The base 5 and the lid 7 each comprise a single sheet of thermo-formed high molecular weight HDPE. The sleeve 9 is made from a suitable material, such as heavy duty corrugated cardboard. Alternatively the sleeve 9 may be plastics or plywood. The lid 7 may be thin sheet formed to provide a greater rigidity, and may include the Uni-Pak slide lock mechanism.

The container 1 is collapsible. The sleeve 9 may be detached from the base 5 and the lid 7 and may be folded flat. The folded sleeve 9 may then be placed in the base 5, and the lid 7 may then be placed directly onto the base 5. This provides an extremely efficient way of transporting the container 1 when it is empty.

To assist in securely coupling the base 5 to the lid 7 a protrusion 11 is provided on the base 5 which cooperates with a correspondingly shaped recess 13 in the lid 7 when the lid 7 is mounted directly on the base 5. The protrusions 11 also act to support the walls 15 of the sleeve 9 when it is in a non-collapsed state. In addition to securely fitting the lid 7 to the base 5 when the sleeve 9 is in a

collapsed state, the protrusion 11 also serves to stop the lid 7 from deforming when the collapsed container 1 is in a stack of containers. In one arrangement (not shown) the protrusion 11 secures a drop flap in the side wall 12 of the sleeve 9 in an open position. The flap is simply folded down and tucked behind the protrusion 11.

The base 5 of the container 1 will now be described in more detail with particular reference to Fig. 3. A lip 17 is formed around the periphery of the base 5. The protrusions 11 described above are formed on the lip at opposing sides of the base 5. The lip 17 serves to locate and support the walls 11 of the sleeve 9. In the base of the sleeve are formed four substantially parallel ribs 19. The ribs 19 protrude from the bottom of the base 5 to cooperate mechanically with corresponding slots 2 in an appropriate pallet 3. This mechanical cooperation reduces the tendency for the base 5 to move on the pallet 3 to increase safety and to prevent detachment of the container 1 from the pallet 3 when this is not desired.

A pair of flanges 21 is provided at two opposite ends of the base 5. These flanges 21 perform two functions. Firstly, they assist in locating the base 5 on the pallet 3 by preventing movement of the base 5 relative to the pallet 3 in a direction perpendicular to the plane of the flanges. The ribs prevent movement of the base 5 relevant to the pallet 3 primarily in a direction parallel to the plane of the flanges 21. Therefore, in combination, the ribs 19 and the flanges 21 provide a secure fit for the base 5 to the pallet 3 in all directions. The second function of the flanges 21 is provided when the pallet 3 is being moved by a clamping truck. In this situation the flanges 21 which overhang the pallet are pinched by the clamp truck against the pallet face, which reduces the likelihood of the container 1 deforming, and, further, reduces the likelihood of the container 1 jumping off the pallet 3 when it is handled in this way.

The base 5 is also provided with four upstanding portions 23, one along each side of the base (only two of which can be seen in Fig. 3). The upstanding portions 23 serve to locate the walls 11 of the sleeve 9 against the lip 17.

Two projections 25 are formed in opposite parts of the lip 17. These protrusions mechanically cooperate with slots 26 formed in opposite walls of the sleeve 9 to further locate the sleeve 9 on the base 5.

The lid 7 will now be described with particular reference to Fig. 4. The lid 7 includes a lip 29 in which recesses 13, which cooperate with protrusions 11 of the base 5, are formed. The lip 29 comprises a relatively narrow portion 31 and a wider portion 33, as indicated by the respected widths, W and W' shown in Fig. 4. The sleeve 9 fits in the narrow portion 31 of the lip 29 when the container 1 is assembled. When the container is collapsed, and the sleeve 9 folded inside the base 5, the lid 7 is mounted on the base 5, and the lip 17 of the base 5 extends only into the wider portion 33 of the lip 29 of the lid 7.

Two projections 35 are formed in opposite sides of the lip 29 of the lid 7. These projections 35 mechanically cooperate with slots 37 (see Fig. 2) in the sleeve 9, in a similar way to projections 25 in the base 5.

The lid 7 is formed with four pairs of ramps 37, 39, 41 and 43. The ramps are for assisting in the guidance of the prongs of the fork of a fork-lift truck. The ramps 37, 39 41 and 43 serve to guide the prongs into the required position to minimise potential damage to the lid 7. Several containers may be stacked directly on top of each other, or may be stacked with pallets 3 therebetween. Generally, when the containers are full and in their assembled state, pallets 3 are provided between each of the containers 1 when they are formed in a stack. On the other hand when the containers 1 are in a collapsed state, the containers are

generally stacked one directly on top of the other because the pallets 3 are no longer necessary. Whilst the ramps 37, 39 41 and 43 will assist in guiding the prongs of a fork-lift when pallets do separate respective containers 1, the ramps are particularly advantageous when the containers 1 are stacked directly on top of one another. As the prongs of the fork lift are inserted between the lid 7 of one container 1 and the base 5 of another container 1, the ramps guide the prongs upward thereby gradually separating the two containers 1. By providing a pair of ramps on each of the four sides of the lid 7, it is possible to access a stack of containers 1 from any one of the four sides of the stack.

Strapping channels 45 may be formed in the lid 7 to allow the container to be strapped to ensure the most efficient compression loading onto the pallet 3. However, the provision of projections 25 in the base 5 and projections 35 in the lid 7, which form an interference fit with slots 26 and 37 in the sleeve 9 in many applications results in there being no need for strapping. In the absence of straps the lid can be removed simply by bending the wall 12 of the sleeve 9 inwards in the vicinity of the projections 25, 35 and slots 26, 37, whereafter the lid may be lifted freely away.

The lid 7 comprises six recesses 47 for locating a pallet 3 mounted thereon. The side walls 49 of the ramps 37, 39, 41 and 43 serve to locate the skids 51 of a pallet 3 mounted on the lid.

Two flanges 53 may be provided at opposite sides of the lid 7 to locate a central skid of the pallet 3.

Six location points 55, consisting of recesses, are provided for accommodating correspondingly sized protruding members 57 formed in the ribs 19 of the base 5 (See. Fig. 3). This enables the containers to be stacked securely directly one

on top of the other.

The container 1, in addition to being usable with the wooden "EURO" pallet, may also be used with a plastic pallet, converting the system into a Sleeve-Pak to minimise tooling costs.

There may be modifications, for example, upstands adjacent, substantially parallel to and spaced from the legs 21 to provide a positive lock and support feature to locate and support the sleeves without splaying.

CLAIMS

1. A base for a container, the base having at least one rib for mechanical cooperation with a pallet or the like in which the base is mounted in use so as to tend to reduce relative movement between the base and the pallet or the like.
2. A base according to Claim 1, including at least one peripheral flange for tending to reduce relative movement between the base and the pallet or the like.
3. A base according to Claim 1 or 2, including at least one peripheral flange for mechanical cooperation with a wall of the container when the container is in an assembled state and/or for mechanical cooperation with the lid of the container when the container is in a collapsed state.
4. A base according to Claim 1, 2 or 3, comprising at least one part for mechanical cooperation with a container lid on which the base is mounted in use.
5. A base according to any one of the preceding claims, comprising a lip having a projection formed thereon for mechanical cooperation with a slot formed in the wall of the container.
6. A lid for a container, the lid comprising at least one ramp portion for guiding a prong of a fork-lift or the like.
7. A lid according to Claim 6, wherein two ramp portions are provided, the ramps being arranged substantially perpendicular to one another.
8. A lid according to Claim 6 or 7, comprising at least one part for mechanical cooperation with a pallet or the like which is mounted on the lid in

use.

9. A lid according to Claim 6, 7 or 8 comprising at least one part for mechanical cooperation with a container base which is mounted on the lid in use.

10. A lid according to Claim 6, 7, 8 or 9, comprising means for locating a securing strap.

11. A container comprising a sleeve, a base according to any one of Claims 1 to 5, and a lid according to any one of Claims 6 to 10.

12. A container according to Claim 11, wherein the sleeve is collapsible.

13. A container according to Claim 12, wherein the lid and the base include respective means which mechanically cooperate with one another to locate the lid on said base when the sleeve is in a collapsed state, at least one of said means also serving to locate a wall of the sleeve when the sleeve is in a non-collapsed state.

14. A lid, base and/or container substantially as hereinbefore described with reference to and/or as illustrated in any one of or any combination of the accompanying drawings.



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Claims searched: 1 to 5 and 11 to 14

Examiner: Mike Henderson
Date of search: 8 January 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.6): B65D 19/02 19/04 19/06 19/08 19/10 19/12 19/14 19/16 19/18 19/20

Other: ONLINE:WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X,Y	GB 2038278A	(TRANSIT PACKAGING LTD) (Whole disclosure relevant)	X:Cl 1,2 & 4 Y:Cl 11 to 13
X,Y	GB 1496888	(ASHTON CONTAINERS LTD) (Figs 6 & 7 particularly relevant)	X:Cl 1 to 4 Y:Cl 11 to 13
X,Y	GB 1439433	(SVEIN STRÖMBERG & CO A/S) (Fig. 16 particularly relevant)	X:Cl 1,2 & 4 Y:Cl 11 to 13
X,Y	EP 0168252A2	(ST REGIS PACKAGING LTD) (Fig.5 particularly relevant)	X:Cl 1,2 & 4 Y:Cl 11 to 13
Y	US 4765252	(SHUERT) (Fig. 1 particularly relevant)	11 to 13
X,Y	US 3754645	(KILROY) (Fig. 2 particularly relevant)	X:Cl 1,2 & 4 Y:Cl 11 to 13

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